

**ABSTRACT**

The invention relates to numerical simulation of subsurface geological reservoirs. More specifically embodiments of the invention are related to computer modeling of the transmission of properties, for example the flow of fluids (e.g. hydrocarbon natural resources and water), within subsurface geological reservoirs. One embodiment of the invention includes a method of evaluating the transmission of a property within a subsurface geologic reservoir using a graph-theory single source shortest path algorithm.